

Country Name	<b>Strengthening of Activities in Rural Development Engineering Centre (RDEC) Project Phase II</b>
People's Republic of Bangladesh	

**I. Project Outline**

Background	Rural development has been one of the highly prioritized sectors in order to tackle with poverty reduction in Bangladesh, and infrastructure development is regarded as a critical factor to improve people's social and economic conditions in the rural area. However, rural infrastructure development has been still insufficient. The Local Government Engineering Department (LGED) has been implementing programs of rural infrastructure development such as roads, small-sale irrigation facilities, and village markets. On the other hand, LGED did not have a technically standardized system for implementing programs. As a part of Japanese ODA loan project "Northern Rural Infrastructure Development Project," the government established the Rural Development Engineering Center (RDEC) under LGED as a technical core center, and JICA supported the start-up of RDEC by implementing the technical cooperation "Strengthening of Activities in RDEC Project Phase I (2003-2006)". The project supported RDEC activities in development and accumulation of technical information and reinforcement of the training section. However, further capacity development of LGED engineers was needed.																
Objectives of the Project	The project aimed at strengthening RDEC's implementation capacity for rural infrastructure development, in order that LGED implements rural infrastructure projects using technical standards developed by the project.																
	<ol style="list-style-type: none"> <li>Overall Goal: LGED implements rural infrastructure projects using technical standards developed by the project.</li> <li>Project Purpose: Implementation capacity of RDEC for rural infrastructure development is strengthened.</li> </ol>																
Activities of the Project	<ol style="list-style-type: none"> <li>Project site: Bangladesh (Whole of the country)</li> <li>Main activities: i) Training given by Japanese experts to RDEC engineers on planning and design of the rural infrastructure (roads and bridges), ii) Training given by Japanese experts to RDEC engineers on quality control (QC) of the rural infrastructure, iii) Verification of the introduced techniques in the Bangladeshi context, iv) Development of the guidelines and manuals for planning, design, and QC of the rural infrastructure, v) Development of the database of the training history of LGED engineers.</li> <li>Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Bangladeshi Side</td> </tr> <tr> <td>1) Experts: 19 persons</td> <td>1) Staff allocated: 31</td> </tr> <tr> <td>2) Training in Japan: 9 persons</td> <td>2) Land and facilities: Office space for Japanese experts, meeting room, etc.</td> </tr> <tr> <td>3) Training in the third country: 6 persons</td> <td>3) Local Cost: 20.1 million BDT</td> </tr> <tr> <td>4) Equipment: Computers, software tools, GPS equipment, etc.</td> <td></td> </tr> <tr> <td>5) Local operation cost: 18.3 million BDT</td> <td></td> </tr> </table> </li> </ol>					Japanese Side	Bangladeshi Side	1) Experts: 19 persons	1) Staff allocated: 31	2) Training in Japan: 9 persons	2) Land and facilities: Office space for Japanese experts, meeting room, etc.	3) Training in the third country: 6 persons	3) Local Cost: 20.1 million BDT	4) Equipment: Computers, software tools, GPS equipment, etc.		5) Local operation cost: 18.3 million BDT	
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Ex-Ante Evaluation	2007	Project Period	September 2007 to September 2011	Project Cost	(Ex-ante) 326 million yen (Actual) 311 million yen												
Implementing Agency	Local Government Engineering Department (LGED), Ministry of Local Government, Rural Development and Cooperatives (MLGRD&C)																
Cooperation Agency in Japan	Ministry of Agriculture, Forestry and Fisheries																

**II. Result of the Evaluation**

<Special perspectives considered in the ex-post evaluation>

- Indicator 2 of the Overall Goal "target areas and population of beneficiaries of developed infrastructure" was not used as it does not describe a change of the group/area caused by the implemented programs.

**1 Relevance**

<Consistency with the Development Policy of Bangladesh at the time of ex-ante evaluation and project completion>

The project objectives were consistent with Bangladeshi development policies, as agriculture/rural development and infrastructure development were positioned as priority areas for economic development in the Poverty Reduction Strategy Papers (2005-2007, 2008-2010) and National Strategy for Accelerated Poverty Reduction (NSAPR) II (2010-2011).

<Consistency with the Development Needs of Bangladesh at the time of ex-ante evaluation and project completion >

In agriculture/rural development, infrastructure was considered important for improved social and economic situations in the rural area where half of the population lived under the poverty line. Many projects had been planned and implemented by the consultants hired by the donors, but technical capacity development of LGED were needed.

<Consistency with Japan's ODA Policy at the time of ex-ante evaluation>

In the Country Assistance program (2006), one of the priority sectors was economic growth and agriculture/rural development was considered as important means.

<Evaluation Result>

In light of the above, the relevance of the project is high.

**2 Effectiveness/Impact**

<Status of Achievement for the Project Purpose at the time of Project Completion>

The Project Purpose was achieved; RDEC strengthened its implementing capacity for rural infrastructure development. The guidelines and manuals on design, QC and maintenance of rural infrastructure were developed, and through other project efforts such as on- and

off-the job training, LGED core engineers acquired knowledge and skills to the extent that they could function as trainers for the regional laboratories.

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have mostly continued. Firstly, most guidelines and manuals have been used, although the use frequency depends on each. Those on slope protection, field CBR<sup>1</sup> test, soil cement technology, etc. are widely used. QC manuals are revised and updated by LGED. One manual which is not much used is that on cold asphalt mixture because still only few companies produce the mixture. Other ones are some on the geographical information system (GIS) since GIS unit does not have such positions and adequate logistics and therefore still counts on the outsourced contractors. GIS unit uses the manual only on a test basis. Most guidelines and manuals have been distributed to the field offices and used. Some offices reproduced them by photocopying in black and white, when the distributed copies are not sufficient. Secondly, LGED has conducted training for the field staff on planning, design, QC and maintenance of the rural infrastructure based on the annual calendar and budget. For 2015/2016, 476,994 engineers and directors were trained, which is more than the previous year, with the government budget and project support from donors including the Asian Development Bank.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal was achieved, as the number of infrastructure development programs has increased with the use of the techniques standardized by the project. Implemented programs vary--agricultural infrastructure, water supply, cultivation aids such as deep tube well, irrigation canals, crop storage centers, marketing facilities, etc. LGED has constructed more than 16,000km roads and improved 28,000km roads since the project completion (October 2011) until 2015. RDEC officials consider that this proves improved efficiency of LGED works. They also answered that the work efficiency has been improved due to application of the techniques standardized by the project, such as rotary drilling rig machines for sub soil investigation and simple field CBR test for instant laboratory quality tests.

<Other Positive and Negative Impacts>

There are some positive impacts. Firstly, based on the guidelines and manuals, new policy on rural road and bridge maintenance was drafted which awaits for the government approval. Secondly, the project experience and outputs (manuals and guidelines) are shared with the Integrated Water Resource Management Section of LGED.

There was no negative impact on the natural environment or land acquisition and resettlement.

<Evaluation Result>

The Project Purpose was achieved; RDEC strengthened its implementing capacity for rural development. Most manuals and guidelines are utilized at both the central and field level. Technical training for the field staff has been annually conducted. Using the techniques standardized by the project, more programs have been implemented, covering various types of rural infrastructure development. Therefore, effectiveness/impact of the project is high.

Achievement of the Project Purpose and Overall Goal

Aim	Indicators	Results
(Project Purpose) Implementation capacity of RDEC for rural infrastructure development is strengthened.	1. Two Design, one Quality Control, and one Maintenance Guidelines are developed by the end of the project	(Project Completion) <u>Achieved</u> . - 1 guideline on design, 1 guideline on QC and 1 guideline on maintenance were developed. The developed design guideline includes the planned two guidelines on design standards for single lane and double lane roads. - Besides, 13 guidelines and manuals related to design, QC, maintenance and training were developed. * A guideline provides overall guidance to the actions, while a manual is a handbook for the users. (Ex-post Evaluation) <u>Continued</u> . - LGED has referred to most manuals and guidelines developed by the project in its program implementation.
	2. The number of LGED core engineers who learned the applied technology for planning, design, and quality control and maintenance can disseminate their new knowledge & skills to field engineers.	(Project Completion) <u>Achieved</u> . - Four engineers of the Design Unit, 2 of the GIS Unit, 1 of Maintenance Unit and 3 of the QC Unit performed as trainers for the regional laboratories. (Ex-post Evaluation) <u>Continued</u> . - The number of the core trainers was not available, but sufficient to operate the training with its own personnel. <Supplementary information> LGED annually conducts the training to the field staff on planning, design, QC, and maintenance or the rural infrastructure. For 2014/2015, 4,395 were trained with the government budget and 299,788 were trained with the project support. For 2015/2016, 3,955 and 473,039 will be trained, respectively.
(Overall Goal) LGED implements rural infrastructure projects using technical standards developed by the project.	1. Types and numbers of developed infrastructure.	(Ex-post Evaluation) <u>Achieved</u> . - Since the project completion, rural infrastructure development programs has been continuously implemented with use of the standardized techniques introduced by the project: 78 in 2011, 75 in 2012, 80 in 2013, 91 in 2014 and 88 in 2015. Implemented programs vary--agricultural infrastructure, water supply, cultivation aids such as deep tube well, irrigation canals, crop storage centers, marketing facilities, etc.

Source: LGED.

3 Efficiency

Both the project cost and period were within the plan (ratio against the plan: 95% and 100%, respectively). Therefore, efficiency of the project is high.

<sup>1</sup> CBR stands for California bearing ratio. It is a penetration test for evaluation of the mechanical strength of road subgrades and base courses.

#### 4 Sustainability

##### <Policy Aspect>

Development of rural infrastructure is emphasized in the Perspective Plan of Bangladesh 2010-2021: Making Vision 2021 a Reality. Also in the Rural Road and Bridge Maintenance Policy 2013<sup>2</sup> which awaits for the approval, construction and maintenance of rural infrastructure are described.

##### <Institutional Aspect>

LGED is responsible for implementing rural infrastructure development, and RDEC implements activities on development of technical information and technical standards, training and planning. The number of LGED personnel has increased at both central and field levels, by internalizing support staff who worked on a temporary basis. In particular, the training unit has been strengthened, while some posts of GIS unit are vacant. The number of RDEC personnel has remained same since 2013, which is not sufficient to cover ever growing workloads. 10-15% of the approved positions are vacant due to the slow recruitment and transfer and retirement. Regarding the training, necessary information and records are maintained with the Training Management System introduced by the project. LGED used to depend on the outsourced trainers, but now it conducts training with its own core trainers who have a sufficient field experience, although the number is not sufficient. The last training needs assessment was done in 2010, and the next was planned in 2015 but it has not been conducted as of December 2015. Equipment procured by the project including GIS packages, CBR equipment and CAD has been used.

##### <Technical Aspect>

Senior and mid-level engineers of LGED are trained on supervision and monitoring of infrastructure development and proficient in delivering these services. RDEC personnel have sufficient knowledge and skills; They have been trained on the software of GIS and design and CBR test equipment. Also, the field staff have sufficient competencies to conduct GIS, design, QC and maintenance of the infrastructure, according to the training database and interviewed LGED personnel. The manuals and guidelines developed by the project were distributed to the field offices, except that on GIS which has no specific field implication. At some offices, some manuals are lost or damaged, but the second round printing has not been undertaken due to the budget constraints.

##### <Financial Aspect>

The planned expenditure of LGED (including that of RDEC) for 2015 is 87,499 million BDT, much increased from that for 2012 (49,897 million BDT). Among these, the funds as donors' assistance for 2012 and 2015 were 7,574 million BDT and 3,829 million BDT, showing that LGED has been less dependent on the external sources. LGED has sufficient budget for purchasing consumables and spare parts for the procured equipment, according to QC unit. Budget for infrastructure development is requested by each field office and after the check of the headquarters it is adequately disbursed.

##### <Evaluation Result>

Some problems have been observed in terms of the institutional and technical aspects of the implementing agency. Therefore, sustainability of the project is fair.

#### 5 Summary of the Evaluation

RDEC strengthened its implementing capacity for rural development. Since the project completion, most manuals and guidelines are utilized at both the central and field levels. Technical training for the field staff has been annually conducted. Using the techniques standardized by the project, more programs have been implemented, covering various types of rural infrastructure development. For corresponding increasing needs for rural infrastructure development, LGED faces slight issues such as personnel insufficiency and lack of the manuals in some field office.

In light of the above, this project is evaluated to be highly satisfactory.

### III. Recommendations & Lessons Learned

##### <Recommendations for LGED>

1. It is recommended to regularly update and re-print the developed manuals for the field offices, so as to provide a reference for the field staff undertaking works.
2. It is necessary to conduct the training needs assessment on a regular basis (every 2-3 years) and more frequently than every 5-year assessment to reflect the needs of LGED personnel and prepare the annual training calendar, so that the training would continue to be more practical and effective.

##### <Lessons Learned for JICA>

1. In Bangladesh, dozens of plans and strategies are developed through donors' support. In the project, techniques for rural infrastructure development were standardized by developing manuals and guidelines and training the trainers for the personnel capacity development. However, some manuals and guidelines have not been utilized much because necessary materials are not sufficiently available or some works are outsourced to the consultants. Another reason is that LGED lacks adequate logistics to realize the developed techniques. When new techniques are introduced, it is necessary to carefully analyze the current availability of materials and outsourcing of the works and forecast their changes in the future, as well as the capacity of utilizing the techniques. Also, it is important to monitor and support this institutionalization process even after the project completion. Training needs assessment was conducted during the project period, but it has not continuously undertaken. This should be regularly conducted to understand how the developed techniques could be introduced and entrenched in LGED's development works.

<sup>2</sup> There is no specified timeframe. Upon necessity, it is reviewed by LGED.



(RDEC laboratory established with the Project support)



(Concrete strength testing facility in RDEC laboratory)